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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and improve the character of the service rendered to the public.

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CURRENTS OF THE GREAT LAKES.

The department of agriculture, weather bureau, has just published Prof. Mark W. Harrington's comprehensive and interesting report on the "Currents of the Great Lakes." It is accompanied by large maps of each of the lakes and one of the entire Great Lake region, which shows the course of all currents of the lakes. This work of Prof. Harrington's is an important aid to navigation. It makes possible for the first time a current and fog chart of the inland seas. The report was prepared by Prof. Harrington from data collected by means of bottle papers during two seasons of navigation. The subject had heretofore been studied very little. Occasionally a case in the admiralty courts has turned upon the character of the currents, and testimony has been introduced to show the nature of the current in some particular place. It has also happened sometimes that cases in criminal or civil courts have depended on the possible currents of the Great Lakes, and testimony has been introduced in such cases. The relation of these currents to the seasons and weather is indicated by several popular proverbs which are in use along the shores. Two of these are noted by Prof. Harrington: "The currents will always run the way the wind is going to blow from six to twelve hours before the wind comes." "The currents in the Great Lakes move very fast when thunder clouds are in the sky." Prof. Harrington groups the Great Lake currents under four heads, as follows: (1) Body currents, (2) surface currents, due to the prevailing winds, (3) return currents, (4) surface motion. These lakes all have an outflow, and there must be a general motion of the water toward this outflow. These create currents and are called body currents. They are visible in every case on the maps, and continue through the year, and affect most of the water.

ILLEGAL FISHING ON LAKE ERIE.

The dispute over the American fishing nets seized some few weeks ago in Lake Erie by the Canadian government cruiser Petrel has taken an international turn and Commander Wakeham's report has been forwarded to the British authorities, who will deal with the United States in the interests of Canada. Commander Waltham's report fully establishes Canada's claim that the seizure was made in Canadian territory between Point Pelee and Kelly's island. The owners of the nets claim the nets were seized in an entirely different place from that sworn to by the Canadian officers.

TRIAL OF ALUMINUM SECOND-CLASS TORPEDO BOAT.

The official trial of the second-class torpedo boat built by Yarrow & Co., for the French government, and having the following general dimensions: 60 feet long by 9 feet 3 inches beam, consisted of a continuous run of two hours' duration in the estuary of the Thames. Weather, calm; number of persons on board, seventeen; total load on trial, three tons.

No. of run.	Steam in boiler.	First receiver.	Second receiver.	Vacuum in condenser.	Air pressure in stokehold.	Revolutions per minute.	Time on knot.	Speed.	First means	Second means.	Mean of means.
				in.	in		M S				Knots.
1	185	72	12	24	2½	600.36	2 42	22.222	20.893		
2	185	72	12	24	1¼	598.80	3 4	19.565	20.721	20.807	20.503
3	175	72	12	24	2⅜	593.40	2 45	21.877	20.412	20.566	
4	175	62	11½	24	1½	578.16	3 10	18.947	20.187	20.299	
5	180	65	11	24	1½	586.80	2 48	21.428	20.496	20.341	
6	185	70	12¼	24	1¼	591.48	3 4	19.565			

During the trial of two hours' duration the engines made 70,948 revolutions, being at the rate of 591.2 revolutions per minute, corresponding to a mean speed during the entire run of 20.558 knots per hour. The boiler —Yarrow's patent water tube—made ample steam without priming, and the engines worked without any heating. The vibration was very slight, and not appreciable.

Beyond all question Mr. Yarrow is voted as having achieved a remarkable success. Many men shook their heads when he suggested the use of aluminum, and did not hesitate to say he was courting failure. The result has, however, more than justified him; he has succeeded in producing the best torpedo boat of the size that has ever been built. It now remains for the makers of aluminum to improve their processes and cheapen their material, so that the use of the new metal may be more widely extended.

A MERCANTILE MARINE BUREAU.

One of the greatest arguments in favor of centralizing jurisdiction over the United States mercantile marine is contained in the annual report of ex-commissioner of navigation Hon. E. C. O'Brien. This singular episode furnishes a reason in part for the decadence of our over-sea carrying trade and will at once show the incompetent if not ridiculous system observed in the guidance of affairs connected with the country's merchant marine. The circumstance alluded to in the foregoing is as follows.

It appears that early in the year 1885, the Minister of Sweden and Norway to the United States made a demand upon this government for a refund of tonnage tax alleged to have been illegally collected from vessels of his country. The then Commissioner of Navigation, acting upon what appered to him to be the intent of the law, refused to make such refund. The matter engaged the attention of two Swedish ministers, two secretaries of state, three secretaries of the treasury, the same number of commissioners of navigation, two attorney-generals and committees of congress and two presidents of the United States. Each one of the officers of the United States and committees of congress just mentioned conceded the justice of the Swedish claim and its legality under the provisions of our laws. But two commissioners of navigation preferred to remain steadfast in their opinion as to its legality and it was conceded that the power invested in them by law made their adverse decision a bar to any action by a superior officer or United States Court until congress should act upon the subject. The embarassment was not relieved until commissioner of navigation, E. C. O'Brien rendered an opinion to the effect that the claim made by the Swedish minister was valid.

A separate Marine Board would be best for all concerned, but until this is brought about, it is evident that there would be a concentration of work and better administration of the laws, were the bureau of navigation, and steamboat inspection service, the life-saving service, the marine hospital service, the light-house board and revenue marine service placed in charge of one assistant secretary of the treasury.

AND now we learn that the fastest steam launch in England and, in fact, in the world is the Hibernia, which runs 29 miles an hour with the stream and 26½ miles against it. The boat is 48 feet 5 inches long, 7 feet 3 inches beam, and 1 foot 4½ inches in draught. Her engines are two cylinder, both high pressure, 7⅛ inches in diameter, stroke, 6 inches, revolutions from 750 up to 1,050 per minute. The propeller is three-bladed. At ordinary speed the boat makes but little wash.

NEWS AROUND THE LAKES.

CHICAGO, ILL.

Special Correspondence to The Marine Record.

It is reported that Leatham & Smith, of Sturgeon Bay, have purchased the steamer Fountain City.

The L. M. & L. S. Transportation Co. will give their steamer City of Traverse a new main deck.

Robert Tarrant is giving the engine and machinery of the steamer Servia a thorough overhauling.

Carr & Blair chartered the steamer Nyanza for wheat for winter storage and delivery at Buffalo in the spring at 2¾ cents.

The V. O. T. Co.'s tugs Protection and Dan T. Helm towed the steamer Tom Adams from South Chicago to this port on Monday.

The steamer Frontenac was in the Chicago Shipbuilding Co.'s dry dock at South Chicago last week for repairs to her stern bearing and some calking.

Hugh McMillan chartered the steamers Livingston and T. W. Palmer for wheat for winter storage and delivery at Buffalo in the spring at 2¾ cents.

Inspectors C. A. Richardson and Stewart A Moore went to Michigan City on the 25th of December and inspected the hull and boiler of the fish tug Diamond.

J. G. Keith & Co. chartered the steamer S. S. Curry for oats and the barges Yukon and Iron Queen for wheat for winter storage and delivery at Buffalo in the spring.

Palmer, Cook & Calbick chartered the steamer Germanic and consort Emma C. Hutchinson for wheat for winter storage and delivery at Buffalo in the spring at 2¾ cents.

The steamer S. S. Curry, Capt. Geo. Robarge, was towed to the Central Elevator on Sunday afternoon to load a cargo of oats. It is estimated that she will carry 200,000 bushels and upwards.

At Miller Bro.'s shipyard the steamer D. C. Whitney was in dock for repairs to stern bearing and some calking, the steamer J. H. Prentice to have leaks stopped and stern bearing fixed, the steamer N. K. Fairbanks for a new fore foot, piece of new stem, some new planking and calking.

The Dunham Towing & Wrecking Co. have their tugs Dunham, Spencer and Perfection busy at the water works cribs keeping the ice free from the inlets. Their tug Mosher and a diver at South Chicago lowering the pipe across the Calumet River for the Standard Oil Co. They have also a diver at the Evanston water works crib assisting in freeing the ice from the inlet.

William Saville, shipbuilder, is giving the barge J. H. Rutter a new starboard bow, some outside planking, new chocks all around, new covering board and timber heads, some new ceiling and some calking; the barge S. M. Stephenson is receiving new deck beams and deck and covering board and some outside planking; the barge Fanny Neil is receiving some recalking, and the steamer Jesse H. Farwell some repairs and calking.

Considerable activity is becoming manifest among shippers here, now that both the price for wheat and rates for winter storage and spring delivery have been forced down. Room for 465,000 bushels of wheat was taken on Saturday at 2¾ cents to Buffalo, and a canal rate of 4¼ cents to New York. Among the vessels reported placed were the steamers St. Lawrence, Thomas W. Palmer, Uganda, barge Iron Queen, and a steamer to be named by Keith & Co.

The Goodrich Transportation Co. have their side-wheel steamer Chicago in dry dock at Burger & Burger's shipyard, Manitowoc, receiving a thorough rebuild, comprising new frames, ceiling, floor timbers, planking, arches in hold, overhang arches with steel caps and steel pointers, steel cord under deck beams and diagonal braces, new decks, new planking on top sides and a thorough calking, also a new water bottom to her boiler.

The Goodrich Transportation Co. have their steamers City of Ludington and Menominee doing winter service between Chicago and Menominee and way ports on the west shore.

At a meeting of the M. E. B. A. No. 4, held at their hall, 2 Market street, Friday evening December 28, for the purpose of electing officers for 1895, D. W. Lanagan was elected president; P. J. McEwen, vice president; E. E. Morris, recording secretary; George A. Grubb, corresponding secretary; D. M. Wise, financial secretary; James Donnelly, treasurer; James Doyle, chaplain; William C. Wieland, conductor; William Ponsonby, doorkeeper; Thomas F. Dowd and George A. Grubb representatives to the national convention at Washington, D. C., commencing January 21st. The association will give their twentieth annual reception and ball at Brand's hall, Clark and Erie streets, Thursday evening, January 31st, 1895. The arrangement committee have already met with excellcnt encouragement from their friends and a great success wiil be assured.

The new clam shell derricks and cable way put in by the W. S. Bogle Co., of Chicago, for the Delaware & Hudson Canal Co.'s coal docks at Chicago, has netted them a saving of $16,000 over and above any previous year, handling the same amount of coal on their docks. The machinery put in by the W. S. Bogle Co. for the Youghiogheny & Lehigh Coal Co., on St. Louis Bay, West Superior, discharged 45,000 tons of coal commencing October 10th, finishing November 23d. The coal was carried about three-fourths of a mile to where it was discharged into sheds, the average price being about 3⅞ cents per ton. The company are now figuring on several large plants and expect to be very busy after the new year. Supt. C. H. Notter, of the W. S. Bogle Co., has just returned from West Superior after completing and testing the derricks built by them for the new Lehigh Valley Coal Co. on Tower Bay slip, West Superior. The machinery is all ready to operate at the opening of navigation.

CLEVELAND, O.

Special Correspondence to The Marine Record.

The keeper of the crib light was caught in a snow storm and froze to death in his boat when going out to trim his lamps on Sunday night. His companion, a boy of sixteen, rowed the small boat ashore to the life-saving station.

General Manager John F. Pankhurst, of the Globe Iron Works Co. states that his company will bid on the three torpedo boats which are to be built and for which the government sent specifications to all builders intending to furnish proposals for building.

Invitations have been sent out by the general manager of the Northern Steamship Co. for a dinner to be given newspaper men at the Hollenden on Friday at 7 p. m. in honor of the launch of the North Land. Many out of town scribes will attend the launch as guests of the Northern Line, owners of the new boat.

There has been some talk in the air relative to a combination of owners to fix freight rates on coal next season. The more conservative owners and several of the largest companies disclaim any leaning in such a direction and it is not likely that the measure will meet with the support that it undoubtedly deserves if paying freights are to be upheld in the future.

The city engineer has designed a new plan for a bridge to span the Cuyahoga at Columbus street the foundation for which is already laid. The bridge will be double, and the two parts will swing toward either side from the center without a pier in the middle of the river. The motive power to be used will be electricity and compressed air.

Every effort ought to be made to reclaim the lake front and establish a system of slips, wharves and dry docks under municipal control from the shore line out to the present harbor limits. The revenue from this investment would pay the city a good rate of interest besides taking a great step towards advancing the port on to the greater Cleveland about which we hear so much these days.

Invitations are out for the launch of the new twin screw steel passenger steamer North Land, on Saturday afternoon, January 5, at 2:30, standard time, from the Globe Iron Works Co. shipyard, W. Old River street. The large steamer will be christened by Mrs. F. P. Gordon, representing the Northern Steamship Co., and she will be launched by Miss M. Gertrude Hanna, representing the Globe Iron Works Co.

The light-house on Water street, for many years a familiar landmark, will probably be abandoned by the government next year. The war department has recommended to congress that the Water street property be sold and $20,000 of the proceeds used for the erection of a new keeper's dwelling and storehouse. It is under the head of indispensable appropriations and will in all probability be approved. The money will be used for the erection of a building near the life-saving station at the west pier. It will be occupied by the light-keepers and will have a place for the storage of light-house supplies.

The firm of Mitchell & Co., composed of Capt. John Mitchell, Mr. John F. Wedow and Capt. Alfred Mitchell, vessel and insurance agents have issued this year a very handsome and useful calendar. The illustration shows a fine colored view of the steamer W. H. Gratwick, and in addition to the calendar portion, figures showing the production of all iron mines in the Lake Superior region is given for the past forty years, comparative rates of freight between ore and grain as well as the weight of grain per bushel is printed in clear type at the sides of the "day reckoner."

The annual meeting of the Marine Engineers' Beneficial Association was held on Wednesday at No. 98 Superior street. The following officers were elected: President, John N. Kirby; vice president, Silas H. Hunter; recording secretary, John Hayward; financial secretary, James Carr; corresponding secretary, J. F. Reilly; chaplain, Henry F. McAuley; conductor, Edwin Stoddard; indoor keeper, Charles Clark; outdoor keeper, William Most; trustees, M. B. Sturtevant, William Kennedy, sr., and James Carr. J. N. Kirby and John Hayward were elected delegates to the national convention, which will be held at Washington, Jan. 20.

A committee of prominent masters and pilots with Capt. W. S. Mack, president of the Shipmasters Association of this port, as chairman, met at the office of Goulder & Holding, proctors in admiralty, on Monday and formulated a set of revised sailing and steering rules for lake navigation. The principal changes suggested are in the fog signals which as at present constructed give no code of passing signals in thick weather, a feature without which it is voted impossible to navigate safely on the lakes. The revised rules will be endorsed by the Shipmaster's Association at their meeting on Friday night and will then be forwarded to all other branches of the Association for similar action to be taken.

The Cleveland lodge of the Shipmasters' Association, held its annual meeting on Friday and Capt. William S. Mack, who has been a prominent member of the association since it was organized, was elected president. The other officers are: First vice-president, Capt. J. A. Holmes; second vice-president, Capt. George M. Mallory; financial secretary, Capt. W. A. Collier; recording secretary, Capt. Charles A. Benham; treasurer, Capt. Thomas Jones; Capt. William S. Mack as delegate and Capt. C. E. Benham as alternate will attend the grand lodge meeting. The association is in good shape financially, and it is expected that a large number of new members will be initiated this winter. It was decided at the meeting to give a reception and ball next month. Capts. Henry Stone, William S. Mack, W. A. Collier, J. B. Hall, John Nelson, Richard Neville and C. A. Benham were appointed a committee to fix the date and make all the arrangements. The members of the committee say that the hop will be the social event of the season.

At the annual meeting of the directors of the Floating Bethel the following officers were elected: President, Capt. Thomas Wilson; vice presidents, S. H. Curtiss and Capt. George Stone; treasurer, C. O. Scott; secretary, Samuel Barker; chaplain and superintendent, Rev J. D. Jones; trustees, Capt. Wilson, chairman; W. D. Rees, secretary and treasurer; George Stone, S. H. Curtiss and C. O. Scott; directors, H. F. Lyman, W. D. Rees, Frank Rockefeller, Samuel Mather, P. M. Hitchcock, S. H. Curtiss, Capt. C. Rewell, C. H. Strong, Rev. J. D. Jones, Samuel Barker, C. O. Scott, S. P. Fenn, Robert Wallace, Capt. Thomas Wilson and George Stone. Reports showed the institution to be $600 in debt. Numerous contributions have been made and among them $100 from Frank Rockefeller, to be used in equipping a reading room. Hundreds of baskets of groceries, bales of clothing, boots, etc., besides a small mine of coal was distributed to the local poor on Thanksgiving and Christmas days. It is safe to say that there is no institution in the city that does more good with the resources at its command than the Floating Bethel does, although it no longer floats, being now domiciled in a commodious brick block on River street.

DETROIT, MICH.

Special Correspondence to The Marine Record.

The well-known firm of government contractors Carkin, Stickney & Cram of Saginaw E. S. Mich. have removed their offices to this port.

The steamer Nyack appears to be doing a flourishing business on the Muskegon-Milwaukee winter route.

She left Muskegon one night last week with 100 tons of cargo and twenty passengers.

J. C. S. Pringle has sold a one-third interest in the schooner Péshtigo to Charles F. Bauer, of Saginaw, for $2,000.

The Shipmasters' Association of this port wish to correct the rumor that their ball on January 17 is to be a full-dress affair. They expect it to be a fine social occasion, but quite informal, shipshape and enjoyable

The report that the steamer Arrow, now in course of construction at the Detroit Dry Dock Co.'s works at Wyandotte, is about ready to launched is premature. The work is delayed by the non-arrival of some of the steel, and the launch will not take place for a week or two, at least.

The Grummond Line tug Champion succeeded in raising the partially-burned steamer Burlington from the bottom on the Canadian shore of Detroit River and the wreck now lies at Windsor. She is the property of J. A. Campbell of Windsor and the Grummond Towing and Wrecking Co. of Detroit. In her present shape the craft is said to be worth the amount of her insurance, $10,000, and the lumber cargo remaining on board is valued at about $8,000 more.

Contracts for machinery for the two car ferries to be built by the Craig Shipbuilding Co., of Toledo, for the Conneaut-Port Dover line, have been placed with the Frontier Iron Works and S. F. Hodge & Co. Each of the firms will engine one of the boats. Engines will be the same as those in the Ann Arbor ferries, now on Lake Michigan. In these boats the diameter of the cylinders of the after engines, two sets, are 23 and 46 by 36 inches and the forward engine 20 and 40 by 36 inches.

"I cannot tell what the government will do with the old Sault lock whan the new one is completed in 1896," said General Poe to a reporter recently. "Oh, yes, it will have to be rebuilt and enlarged to meet the increasing traffic of the lakes, but just when this time will arrive it is hard to say. When the Canadian lock is finished the new lock will be relieved of the Canadian tonnage, which is 4 per cent of the tonnage of the lakes, and of a good deal of the American tonnage, provided the Canadians do not impose toll: but the vessels are growing in size so rapidly that we may need the use of the old lock in an enlarged and deepened condition, before many years have passed."

Capt. Magle, of the steamer American Eagle, reports that after leaving Sandusky on Saturday afternoon bound for Put-in-Bay and Ballast Island, his vessel grounded on an obstruction not marked on the chart. Capt. Magle says his vessel was drawing at the time about twelve feet of water and when she struck the shock was felt fore and aft. He has frequently traversed the route he was taking on Saturday afternoon during the summer months between Lakeside and Put-in-Bay, but during the excursion season the steamer draws three feet less water. At the time he struck he was steering N. ½ E., was abreast of Lakeside, and had just cleared Ballast Island, and had the range open on Carpenter's Point, Kelley's Island and Mouse Island. It is thought that the obstruction is probably a large loose boulder.

The Canada-Michigan Tunnel Co., are now after parliament in Canada for an act authorizing the construction of a bridge across Detroit River. It is well understood among vesselmen that the navigation of Detroit River with a bridge in the way, no matter how liberally it is constructed in the matter of draws, is a very dangerous proceeding, and congress, after the liberal and almost complete appropriations which it has made for clearing away obstructions, and the proper lighting of the Detroit River, will not be allowed to stultify itself through ignorance by permitting any corporation to place a bridge across the river. It will take close watching by a special committee of the Lake Carrier's Association to head off an international bridge. It can already be surmised that the original forces and advocates of a bridge across the river have only shifted their ground to Canada, but with close attention to the matter it is safe to say that the secretary of war will never authorize such an obstruction to be built.

A few years ago the Detroit Transportation Co. moved their headquarters from Detroit to Hamtramck and refused to pay taxes to Detroit, claiming they should be taxed in the township. To secure that privilege they sought a mandamus compelling the board of assessors to take them off the list of taxable property in Detroit. The case went to the supreme court and was decided in favor of the city. The court held that the principal offices of the company were not located in Hamtranck in good faith, but were in Detroit, where most of the business of the company was transacted. Most of the transportation companies now have their headquarters located in Hamtramck and, as is well known, refuse to pay taxes to the city of Detroit. About a month ago suit was begun against them to collect the city tax for the fiscal year ending July. 1892. Friday, assistant city counsellor Joslyn commenced suits against ten of the companies to collect the taxes for the year ending July 1, 1993. He has in preparation suits to collect the taxes for the past year. The suits have now begun against the several companies to collect the following amounts: Buffalo and Duluth Transportation Co., $151.60; Wallace & Cunningham Transportation Co., $303.19, the Farwell Transportation Co., $620.80, Pridgeon Transportation Co., $227,39, Parker Transportation Co., $333. 51, Roby Transportation Co., $387.99, the Northwestern Transportation Co., $1,667,57, J. Emery Owen Transportation Co., $1,243.10. The question involved in the suit is one of fact as to the location of the principal offices and will be tried before a jury. Speaking with regard to the suits for the collection of taxes, Mr. Joslyn said: "I understand the real reason these steamboat companies refuse to accept the decision of the Detroit Transportation Co. case as final and pay their taxes is that the city picked out an easy case at that time and that the facts in that case were not fairly representative of the situation of the other vessel companies. The real question is whether or not the business offices of the companies are located in Hamtramck and not in Detroit. If they have in good faith located their principal offices in the township and can make a Wayne county jury believe that fact they will probably not have to pay the taxes."

BUFFALO, N. Y.

Special Correspondence to The Marine Record.

This port is becoming alive to the necessity of improved harbor facilities and better dock room. So far the excursion boat accommodation is uppermost, but once attention is directed the subject is likely to spread until a radical change from old time methods is inaugurated.

The receipts of flour and grain at New York during the past year were 42,129,348 bushels by rail and 43,065, 021 bushels by water.

The number of tons carried on the canals during the season was 3,882,560, as follows: Erie Canal, 3,144,144 tons; Champlain, 550,279; Black River, 56,024; Oswego, 98,843; Cayuga and Seneca, 33,270. This tonnage was made up as follows: product of the forest, 872,601 tons; agriculture, 1,412,142; manufactures, 87,241; merchandise, 352,741; other articles, 1,157,835. Of the total tonnage 2.818,254 tons were shipped East and 1,064,306 tons went West. The through freight aggregates 2,303,319 tons and the way-freight, 1,579,241 tons. Of the total tonnage 713,621 tons were of boards and scantlings; 903,361 of wheat; 265,337 of corn; 100,874 of oats, and 532,684 tons of anthracite coal. Comparing the season of 1894 with that of 1893 there is found to be a loss of tonnage amounting to 449,403 tons. The past season's tonnage is the smallest that has been transported upon the canals any year since 1859.

Maj. Ruffner, corps of engineers, U. S. army in charge of this district gives notice that the Buffalo harbor lines have beeh established according to the River and Harbor Act of 1890. After quoting the law in regard to penalties for building or making deposit into the harbor, he says: "On December 21st, the secretary of war established harbor lines for the outer harbor of Buffalo, under the provisions of this section. The lines are described as follows: Beginning at the outer end of the south pier a line 5,500 feet long is draw parallel to the breakwater; then continuing southwardly the line makes a slight deviation and is drawn parallel to the west line of the city Ship Canal, and 1,440 feet distant from it. This line is continued as far as the prolongation of tht sand-catch pier. This entire line is a coincident bulkhead and pierhead line, it being understood that no filling shall be allowed beyond the present shore line at mean lake level, except it be confined within permanent bulkheads. Between the harbor line and the breakwater is an area reserved for a permanent harboe. The width of this is 1,900 feet."

PORT HURON, MICH.

Special Correspondence to The Marine Record.

The steamer Mary is still making regular trips between Port Huron and Algonac.

The steamer Arundell arrived up from Detroit Thursday night. She encountered considerable ice at the flats.

Miss Emma A. Bird, daughter of Benjamin Bird, of Erie street, and Christopher A. Moore, of Fairport, O., were married Dec. 20th, by Rev. W. S. Sheridan, of Detroit. Mr. and Mrs. Moore are well known in Port Huron and their many friends wish them a long and prosperous life. After visiting a few weeks with friends and relatives in Detroit and Toledo, they will take up their residence in Cleveland.

Capt Wm. Balfour, a well-known St. Clair vesselman, died at his home in that city on Thursday. He had been a sufferer from consumption for some time.

The steamer Stauber brought about 25 people from Point Edward to Port Huron Friday night to attend "Faust" at the City Opera House. On the return trip the boat encountered considerable ice and sprung a leak opposite Bulwer street. To avoid accident the boat was run into shallow water near the foot of Bard street, and the passengers taken ashore in a small boat. Some of the theatre goers got their feet wet, but nothing more. For a time there was considerable excitement on the Stauber. The passengers were taken to Point Edward in row boats.

The barge Wm. Grandy took fire Sunday afternoon and was badly damaged. The fire was the work of boys who went on board and built a fire in the forecastle.

R. M. R. Co.

BAY CITY, MICH.

Special Correspondence to The Marine Record.

Following is the lists of boats laid up at Bay City, this winter: Benton, Wissahickon, Kelton, Monticello, Lester, Antelope, Thew, Ossifrage, Lora, Reindeer, Agnes, Ketcham, Exile, Jackson, Bottsford, Celtic, Leuty, Wright, Jenness, Donaldson, Ferguson, Sophie Smith, Law, I. J. Boyce, Walbridge, Metropolis, Waldo Avery; steam yachts, Restless and Wapiti; tugs, Parker, Protector, Manistique, Argyle, Mocking Bird, Waldo Avery, Giant, Maud S., Witch of the West, Geyser, Mundy, Tempest, Hand, Haight, Louise, Liken and the Saginaw Towing Association's fleet, Traveler, Niagara, Winslow, Charlton, Sweepstakes, Peter Smith, Ella Smith, Charlie O. Smith, Moiles, Willie Boutell, Weidmann, Lulu Eddy, Pierce, Florence, Sarah Smith, Sea Gull and Westover. The steambarges Thew and Waldo Avery are to be rebuilt this winter.

The scene at Davidson's shipyard is a very busy one. There are five boats building, two light draft schooners or large scows, two steamers, and one heavy draft schooner, keeping a force of over 500 men busy rushing the work. The company has plenty of material on hand and building operations are being carried on as fast as the weather will permit. Pay day comes every two weeks, and the 500 men given almost daily employment can testify to the fact that the city would indeed need a relief store this year were it not for the shipyards being in operation.

OWEN SOUND, ONT.

Special Correspondence to The Marine Record.

There are in winter quarters here steamers Manitoba, Athabasca, Alberta, Myles, Sir S. L. Tilley, Manitou, Cambria, Bayfield and Petrel. Vessels, Ariel, Edward Blake. Tugs, Heather Belle, A. Ainslee, Rover, Porter Reid and Canaan's dredge outfits. Tow barges Cherokee and Jumbo, besides several steam yachts and sailing yachts owned by our local talent. We have had a better season's business than expected and there has been no loss worth mentioning. The White Line steamers have again carried the broom and swept the board cleaner than ever before in regard to freights out of this port against their opponents, the Black Line, consequently the usual genial smile of their agent, Mr. H. E. Smith, has somewhat increased. Capt. Jno. Simpson is building a sidewheel steamer here for the Black Line and will have the usual outfitting and repairs to the different crafts which will nicely keep things going until the spring opening.

FOR HANDLING IRON ORE.

The "clam shell," a device invented to load iron ore from the stock piles to the cars, is being tried on the Minnesota dock at Ashtabula, O. This machine was tested last year but proved a failure. It has since been altered and its working qualities are supposed to answer the purpose to better advantage.

LAKE FREIGHTS IN 1894.

The average rate on corn from Chicago to Buffalo was 1.19 cents per bushel as compared with 1.43 cents last year; the rate on ore from Escanaba to Ohio ports was 46.12 cents per ton as against 56.16, though the ore rate from Duluth at 76.6 cents was less than a cent below that of last year; the rate on coal from Buffalo to Duluth averaged 24.98 cents per ton, as against 29.16, while there was an increase of a little more than a cent a ton on coal from Buffalo to Chicago at 47.12 cents. The rate on corn did not go below one cent a bushel last year, but this year it touched three-quarters.

For the year, compared with 1893, the flour shipments by lake show a large increase. From Chicago and South Chicago they amounted to 2,190,385 barrels as against 1,472,060 in 1893; wheat fell off more than 5,000,000 bushels, which is over one fourth; corn fell from 63,000,000 to 35,000,000 bushels, in round figures, and oat shipments fell about a third, 7,500,000 bushels.

The total production of iron ore in the Lake Superior region greatly excceded that of the year before, being 7,776,547 tons against 6,058,955 tons in 1892 and 9,074,243 tons in 1892. Lumber shipments from Lake Superior increased, but from Lake Michigan, Green Bay and Lake Huron the business has been lighter than previous records.

The lake lines are said to have done more business than ever before in carrying merchandise east and west. Never before were they such sharp competitors of the all-rail routes.

The Dunham Towing & Wrecking Co. of Chicago, has the credit of issuing a very ingenious graphic delineation, showing the fluctuations of lake freights for the past season which is herewith reproduced as a ready reckoner in a concise form.

AVERAGE DAILY FREIGHT RATES.

Corn, Chicago to Buffalo,	1.19 cts.
Iron Ore, Duluth to Ohio Ports,	76.60 "
Iron Ore, Escanaba to Ohio Ports,	46.12 "
Coal, Buffalo to Chicago,	47,12 "
Coal, Buffalo to Duluth,	24.98 "

To further enhance the foregoing scale we publish the freight rates on corn and wheat compared with iron ore in their earning capacity.

CORN.	ORE.	WHEAT.	ORE.
1 c. equals	$0.40	1 c. equals	$0.3733
1¼ "	.50	1¼ "	.4666
1½ "	.60	1½ "	.56
1¾ "	.70	1¾ "	.6532
2 "	.80	2 "	.7466
2¼ "	.90	2¼ "	.84
2½ "	1.00	2½ "	.9332
2¾ "	1.10	2¾ "	1.0265
3 "	1.20	3 "	1.12
3¼ "	1.30	3¼ "	1.21
3½ "	1.40	3½ "	1.3065
3¾ "	1.50	3¾ "	1.40
4 "	1.60	4 "	1.4933
4¼ "	1.70	4¼ "	1.5865
4½ "	1.80	4½ "	1.6798
4¾ "	1.90	4¾ "	1.7731
5 "	2.00	5 "	1.8665
5¼ "	2.10	5¼ "	1.9598
5½ "	2.20	5½ "	2.0533
5¾ "	2.30	5¾ "	2.1464
6 "	2.40	6 "	2.24

WEIGHT OF GRAIN PER BUSHEL.

Wheat,	60 lbs.	Barley,	48 lbs.
Oats,	32 "	Rye,	56 "
Corn,	56 "	Flax,	56 "

A COMPETENT MARINE BOARD WANTED.

To the Editor of The Marine Record:

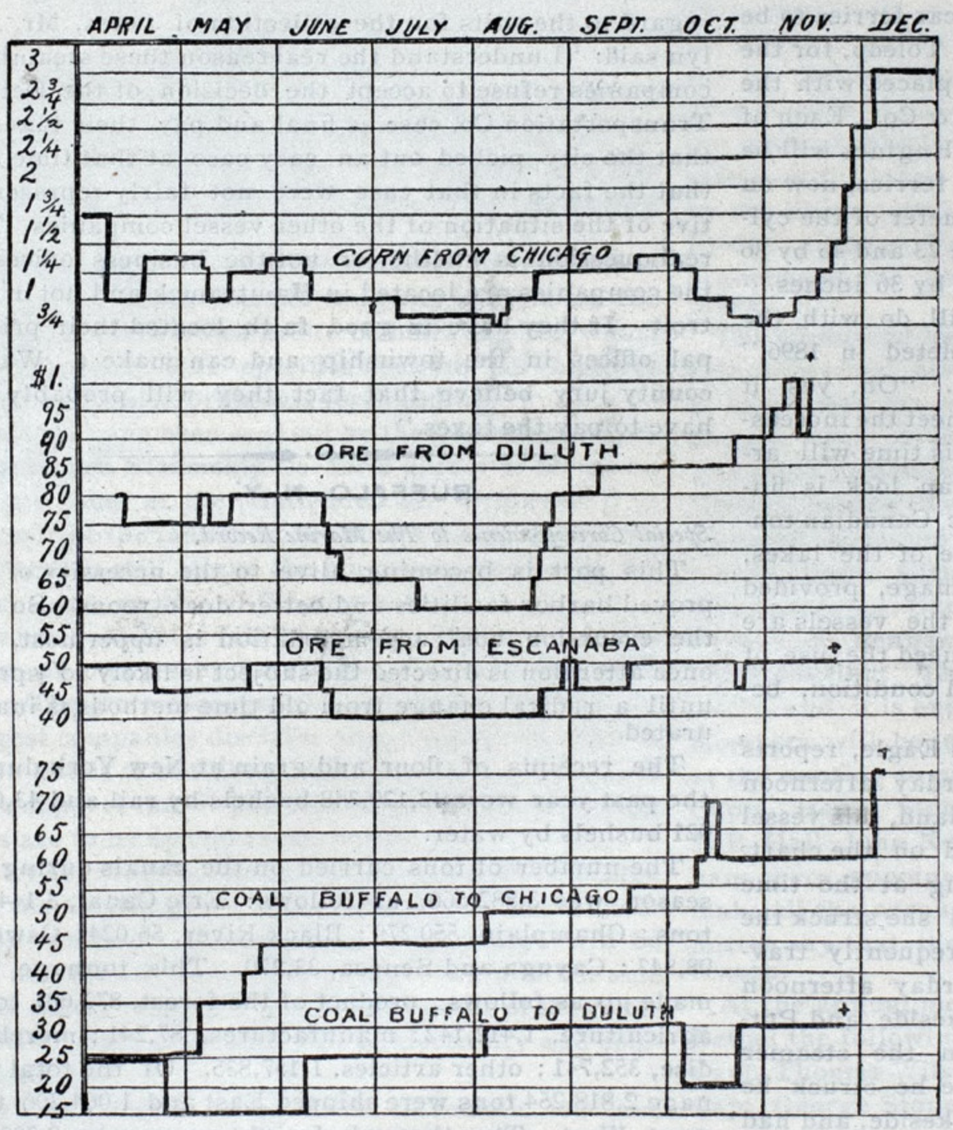
CLEVELAND, O., January 2, 1895.

The letter on fog signals and editorial comments contained in your issue of December 27, meets with the hearty approval of the majority of shipmasters out of this port as well as at other principal centers of lake shipping.

In following along the course of maritime improvements on legislative lines and higher technical education for the officers of the mercantile marine the Shipmasters' Association will, in a few days, endorse the following petition to Congress:

"That section 4409, Revised Statutes, be amended or repealed. The foregoing section reads: "There shall be ten supervising inspectors appointed by the President. Each of them shall be selected for his knowledge of steam, for navigation, and of all parts of machinery employed in steam." It is essential that section 4409 Revised Statutes be amended or repealed so that we, as pilots and navigators, can have an equal representation on the board of supervising inspectors of steam vessels. Section 4412 Revised Statutes states that the board of inspectors shall establish regulations to be observed by all steam vessels passing each other, but I fail to see how such a board as now, and for the past few years has existed, are capable of carrying out these legislative directions. We want qualified men at the head and fount of our marine practice in the "rule of the road" and a fair representation on the board. This we ask not only on behalf of the thousands of licensed pilots, but it is absolutely necessary for the safety of valuable lives and the proper conduct of capital represented by millions of dollars invested in floating property. The perils of our dangerous calling are increased by the badly worded and indifferent system of pilot rules, regulations and ill-timed changes foisted upon us and promulgated by men almost totally unacquainted with the handling of large modern steamers in our crowded waterways, such as the Board of Supervising Inspectors of Steam Vessels are now.

With a board composed of ten highly skilled practical



experts, five of which should have a thorough knowledge of steam and the machinery of steam vessels, there would be no burlesque on rules and regulations passed each year, and such a body would be well qualified and sufficient to pass upon all matters pertaining to that particular branch. The other five members of the board should be skilled pilots and navigators of steam vessels who from their wide and extended experience had proved themselves competent to handle steamers threading their way through crowded waterways at a twelve to twenty knot speed, and these men forming the entire board should be selected in each case on the grounds and merit of their special fitness and experience, a feature which I surmise does not prevail in the political ring where the service now seems to have drifted to. The executive head of this board should be a man of unquestionable integrity and be fully acquainted with the handling of steam craft, the navigation and movements or handling of all types of vessels in the waters over which the board assumes jurisdiction and makes laws to regulate such movements.

Should a skilled and technical board, in its dual capacity, giving a fair representation to each interest, be established in the near future as could easily be done, then the service would be improved at once and the steering and sailing rules be so revised, classified and made perfect as to fit every individual case and position in which two or more vessels could be placed under any and every circumstance of position or weather conditions, so that by aclose adherence to the rules governing action in all cases, there would be almost perfect immunity from serious casualties to steam craft.

There certainly needs something on the lines of the foregoing being done right away, as the personnel of the present service is getting made up of such material as to make it unsafe to allow it to meddle any further with the steering and sailing rules, or rules for meeting, passing and crossing vessels not to speak of the many trifling but annoying changes and amendments to rules which each year in the plenitude of their ignorance they launch out and brand as law to the danger and inconvenience of the sailing community. W. S. M.

CARELESSNESS—OR WORSE.

VOLUNTEER LIFE SAVING STATION,
GODERICH, ONT., Jan. 1, 1895.

To the Editor of The Marine Record:

I desire to call your attention to the following, to show you the treatment received by persons rendering assistance to vessels in distress on this east shore of Lake Huron.

On or about the 11th of Oct. last, the American schooner Home of Tawas, Mich., Capt. Trudo, was driven on this shore through stress of weather and disabled, when fortune favorcd them and their anchors brought them up about fifteen miles north of Goderich. Another vessel, the M. L. Breck, in the same vicinity was also disabled. I at once wired to Kendall, Port Huron, for a tug. The tug Boynton responded to the call although a terrible sea was running. She succeeded in taking the crew off the Breck and then went to the Home, but they refused assistance, hence the tug proceeded to Sand Beach. The next day at noon I left with a small fish tug and the life boat in tow, (not knowing that the Home had refused assistance from the Boynton). When I was within three miles of the Home she parted one of her cables and she went off before the wind with mainsail and staysail on her. I found it impossible to overtake her so returned to the station about 8 p. m. with my crew pretty well used up from exposure and, after going through all this hardship we have never had the slightest sort of an acknowledgement from the schooner or her crew, the members of which we risked so muchto succor.

But that is not all, the next morning I receiyed a message from Kincardine informing me that a vessel was off there in distress with mainsail and staysail gone. I at once called my crew together and was about to start when I received another message from Kincardine saying that the vessel, which proved to be the Home, was, with the assistance of the citizens, safely brought into the harbor.

In addition to the assistance rendered, for which no thanks are asked, the captain made some promises to our people on this side of the land which he has not performed nor have we heard of him or his vessel since.

I just send you this to show you the treatment that a volunteer crew receives, is it any wonder that these crews get discouraged. CAPT. WM. BABB.

ANNUAL MEETING OF THE SHIPMASTERS' ASSOCIATION.

The annual meeting of the Grand Lodge, Lake Shipmasters' Association will be held in Detroit January 8. The Detroit members of the association are preparing for the reception of the delegates. Detroit Lodge No. 7 at its annual meeting for election of officers installed the following officers for the coming year: President, C. L. Wilson; first vice president, A. J. McKay; second vice president, A. J. Fox; treasurer, Hiram Still; financial secretary, George U. Wilson; corresponding secretary, H. C. McCullom; chaplain, J. Parsons; marshal, George E. Merritt; warden, B. H. Sunderland; sentinel, Henry Berlin; trustees, Joseph Waltman, H. C. Bassett. The quarters of the Detroit lodge are in the Citizens street railway building and they are handsomely furnished and occupy the entire third floor of the building.

A MODERN COAL HANDLING PLANT.

(ILLUSTRATED.)

Among the recent improvements in coal handling that of the Lehigh Valley Coal Co.'s storage plant at West Superior, Wis., now practically completed, is one of the most noteworthy on the entire chain of lakes and it promises remarkable economic results. The design and construction are novel and the engineering features progressive. The buildings and machinery are located on a solidly filled in dock which has an area of about 500,000 sq. ft. and a lake frontage of 800 feet. Upon this dock, from designs and under the superintendence of the Dodge Coal Storage Co., Nicetown, Pa., a plant has been erected which will combine maximum of storage capacity and of facility for receiving and reshipping both anthracite and bituminous coal. Records of the various plants fully warrant the conclusion that the cost of handling by this system at West Superior, inclusive of the work of discharging vessels, will not exceed five cents a ton.

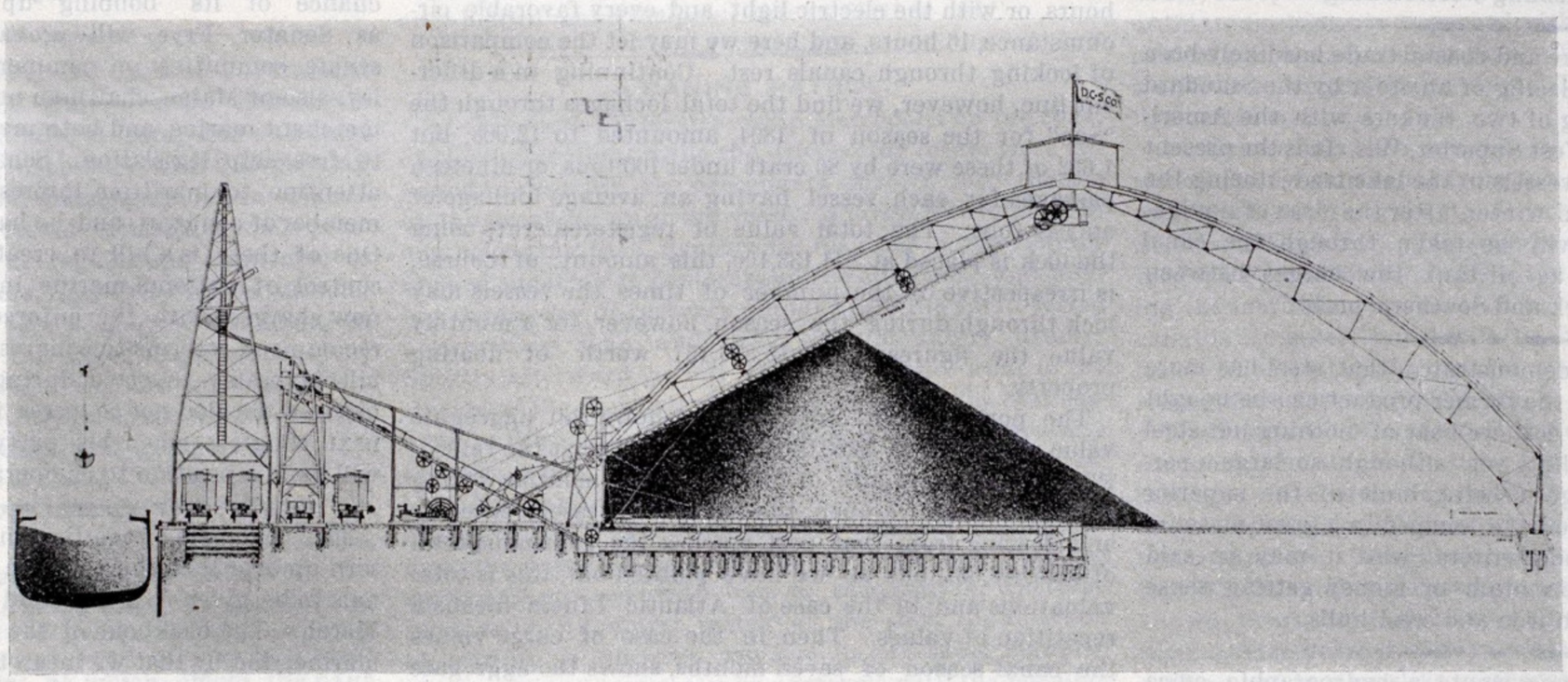
The plant is encircled by a railroad track, which, entering the dock at the southern end, runs up grade along the rear to a car platform 15 or 20 feet high; ascends along the north side, separates at the water front into a double track, and traverses the face of the dock to the place of entrance. Within the space encircled by this dock is an anthracite coal storage plant consisting of two circular buildings with parabolic roofs. Each building is 246 feet in diameter and about 100 feet high at its apex. The coal is stored in these by endless conveyors or trimmers of the Dodge system, which conveyors are fed by chutes from pockets located near the face of the wharf. For reshipment the coal is drawn from each these buildings into a 6 ft. diameter cast iron tunnel which extends from the center of the building to its circumference. Within this tunnel another chain conveyor is operated, which after drawing the coal to the circumference of the building, carries it up an incline and flows it through screens into cars located upon either of the two tracks between which the reloading pocket stands. The underground tunnel receives coal within the buildings through openings provided with gates and chutes. When so much of the coal has been removed in this manner as will flow by gravity through the openings into the tunnel, a ground reloader, pivoted at the center of the building and operated by power, is brought into service. This conveyor, moving upon circular tracks, attacks either side of the remaining coal, drawing it to the center of the building and there discharging it into the tunnel conveyor beneath. In all these operations the prominent feature is the flowing or sliding of the coal and the avoidance of breakage.

That part of the dock lying to the north of the anthracite plant is occupied by machinery for handling bituminous coal. This machinery consists of a double run reversible Dodge conveyor about 300 feet long, parallel to the face of the dock, which delivers the coal received either directly from the vessels or from the storage ground, into a reloading pocket adapted to discharge it into box cars. In connection with this conveyor is operated a second reversible conveyor mounted upon a truss 245 feet long carried by towers 30 feet in height, and adapted to move widthwise to the storage ground, remaining at all times at right angles with the line of the wharf conveyor. This traversing conveyor receives coal from the wharf conveyor and deposits it upon the storage ground within its range of travel. For reloading, the stored coal is again delivered to the traversing conveyor by the automatic shovels attached to the conveyor, and being carried to the wharf conveyor, is by it in turn delivered to the reloading pocket.

Both anthracite and bituminous coal are discharged from vessels by automatic buckets on the Bogle system operated from three towers mounted on tracks parallel to the face of the dock, and as each tower is operated indepently of the others, either kind of coal can be discharged from any point of the dock front.

The storage capacity of the plant is 145,000 tons, and the cost of the entire equipment as above described will be considerably less than two dollars a ton. The arrangements for screening are very complete and appear to insure rapid work and thorough cleaning of the coal. Retail pockets are also provided in the general plan for the convenience of local trade. The general contract is in the hands of the Dodge Coal Storage Co., and being executed under their supervision. The Link Belt Machinery Co., of Chicago, Philadelphia and New York, supply the machinery. The work of erection is in the hands of the Barnett & Record Co., of Minneapolis, and the structural work is furnished by the Allentown Rolling Mills, Allentown, Pa. The Link Belt Machinery Co.'s water tube boilers supply steam to the various engines, which are conveniently located, and the Belt Co. are extensive manufacturers of all appliances for transmitting power in handling all classes of bulk cargoes or products. Manilla ropes are largely used for the transmission of power, and wire rope haulage is employed for the movement of cars through the dock.

The accompanying illustration is reproduced from a photograph of the anthracite plant, and shows clearly the salient features of the Dodge system, which not only permits a fast and economical method of discharging coal, but gives vast advantages in the matter of utilizing ground for storage, a feature which is becoming of more direct importance each year on the lakes.



MODERN COAL HANDLING PLANT, WEST SUPERIOR, WIS.

CANALIZING IN THE WEST.

Several weeks ago the Commercial club of Minneapolis heard E. C. Gridley, of the Altamonte Canal Co., advocate the plans of that company in the construction of a deep waterway from the Twin Cities to Duluth. Last week another gentleman from Duluth spoke to a small gathering of Commercial club members in the same city and presented the claims of the Minnesota Canal Co., an organization with the same object in view, but which wishes to accomplish it by somewhat different methods. The speaker was H. C. Spalding, the president of the Minnesota Canal Co., and a well known engineer both in Europe and the United States. Mr. Spalding said his reasons for talking at this time was to explain what his company had already done toward the inauguration of the proposed waterway and place in the right light the opposition company which had sent a representative to Minneapolis to remove the opposition to the bill it was trying to get through congress. Mr. Spalding began his talk with a general description of the different canal projects of the world, with the history of their construction and the benefits derived from them. Referring to the subjcct at hand, he told of the immense resources of the great Northwest and how a cheaper and better means of transportation would develope and foster the interests upon which the future of Duluth as well as the Twin Cities rested.

"The company was formed in Chicago over two years ago," said Mr. Spalding, "with sufficient capital to carry on the preliminary surveys and carry on the condemnation proceedings necessary in the courts. Surveys have been completed for 100 miles in length, with a width of from five to fifteen miles, Plans for the necessary reservoirs have been formulated, which would gather enough water in rainy seasons to supply the necessary depth in the canal in the winter and summer months when rainfall was slight. From 10,000 to 12,000 acres of land has been legally condemned and acquired, which will be available for use by the company. Now, do not understand that we have been talking canal all this time. The greater part of this work has been done secretly, and on account of having been done on the quiet it has been done better and of course cheaper.

"A word about the construction of this proposed canal, or, more properly, improved waterway, will be in order. In brief it is to connect the Mississippi River at its highest navigable point with the St. Louis River, which will furnish the outlet to the Great Lakes. To make the Mississippi navigable above Minneapolis will require improvements for a good portion of the distance. In places it is not navigable now, as at Little Falls and St. Cloud, wheie either insufficient depth or rapid current prevents navigation. The improvements and the dam and locks which the government is constructing below the Falls of St. Anthony will greatly facilitate the carrying on of work above. When we have the deep waterway on the Mississippi and the St. Louis and the connection by canal we will have a stream twenty feet deep, running at the rate of two miles an hour, from the upper to the lower portion of the St. Louis River, giving connection with the lake itself by an inclined plane such as is in use in the larger docks along the seaboard. Think of the possibilities, gentlemen, of an all-water route to Duluth and Winnipeg! Cotton from New Orleans can go up to the mills upon boats loaded at wharves in the South. By canal Chicago can be reached and the great commercial cities of the northwest be connected.

"This is not a dream or a passing theory, it is a practicable business by engineering methods. To accomplish it is but a question of capital, and sufficient capital is at hand for the purpose. We have spent thousands of dollars in preliminary surveys. More, by their own showing than the capital stock of the corporation which has been trying to supplant the Minnesota Canal Company and steal a march upon our friends.

"By a comparatively moderate outlay boats can be moved from Minneapolis and St. Paul to Duluth. When the canal is constructed it will be a people's highway which every one can use by the payment of only a moderate toll. The cost of transportation by water is but one-fifth of that by rail, and the cost of construction of the waterway would be one-fourth of that of a railroad. During the coming year operations will be commenced, and as much done as possible.

"The question of the right of diverting the St. Louis river has been one of importance, but there will be no difficulties there, for, if we cannot have the St. Louis river, there are numerous streams and lakes near by which can be utilized for their water supply. There are plenty of lakes for storage, giving an inexhaustible supply of water during all seasons. The failure of the Altamonte Company's plan to dam up the St. Louis river has been assured by the recent act of congress. It is certain that the bill for the appropriation of a large sum of money by the government will not pass, for the representatives of Minnesota in congress are opposed to it."

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CLEVELAND, O., JANUARY 3, 1895.

St. Paul, Minn., wants to pull out now and see how glorious a souvenir the municipality can present to the new Atlantic liner building at Cramp's yard in Philadelphia and to be named in honor of or at least to be a namesake of that flourishing western burg.

THE beginning of lake and coastal trade has likely been commenced with the placing of an order by the Standard Oil Co. for the building of two tankers with the American Steel Barge Co., West Superior, Wis. It is the present intention to use these vessels in the lake trade during the summer months, and in winter, after the close of navigation on the lakes they will be taken through the canal and used on the coast as oil tank tow barges between Philadelphia, New York and Southern ports.

SINCE it has been demonstrated that steel has more life than iron and that the former product can be bought at about the same first cost, we hear of nothing but steel being used in shipbuilding, yet, although so large a percentage of new tonnage is being built of the superior metal, the fact seems to have escaped in a great measure the observation of underwriters who it may be said hardly recognize in a premium or money getting sense the distinction between iron and steel hulls.

SAULT STE. MARIE now wants a hydrographic office and considering the slight expense attached to the installation of an office at that point we can see no adequate reason why the petition of the "Soo" Chamber of Commerce should not meet with the best approval of vessel men. Certainly, there is a junior naval officer to be detailed to take charge of the office, and an equipment would be necessary, but after the office was once established the keep-up would amount to a mere trifle, and, of course, the naval officer would be gaining as well as communicating valuable intelligence.

AN injunction to restrain the Manchester Ship Canas Co., from abstracting or diverting water from the River Mersey has been referred to a board of arbitrators for settlement. The Canal Co. seemed disposed to make a canal of the river or a river out of their canal, consequently a well grounded claim has been filed against the Canal Co., who, by the way, are controlled in this matter of exceeding their water supply by an act or acts of parliament. The Chicago drainage canal directors are, in so far as we are aware, in a position to flush their open sewer, now so well along towards completion, with an unlimited supply of lake water, and this, too, even at a low stage of the lake surface, when every inch counts to the commerce of the west and northwest. With a strong flow past any certain point near to the Lake Michigan end of the drainage canal, or when the surface was above the normal there would be no object in limiting the quantity of water which the canal might use, but there certainly ought to be some guage to go by so as to regulate the outflow, or diversion of water during periods of low water levels on the lake. To accomplish this, a sliding scale ought to be framed corresponding to the maximum quantity in cubic feet which the canal company might divert from the lake, under certain conditions of levels, during any twenty-four hours.

TRAFFIC.

Notwithstanding the building of 4,000-ton steel steamers, the keep-up of a twenty-one foot channel through the connecting waters of the lakes and a commerce of imports and exports valued from fifty millions to one hundred millions of dollars out of our principal lake ports, it would be as well to glance around and see what other sections of the nation and some foreign waterways are doing. At the same time it would be advisable to keep in mind that, while strongly supporting all projects destined to facilitate lake transportation interests and ever ready to take up the cudgels in defense of indisputable benefits to the majority, either in the form of river and harbor improvements, aids to navigation, naval architecture and equipment as well as the many kindred interests connected therewith, we should have no desire to make a burlesque of commercial statistics by drawing invidious comparisons between the traffic of our own and foreign waterways. In such a light, however, must be considered the figures produced occasionally misleading readers regarding the through traffic at the "Soo" and Suez Canals.

In the first-named passage there is but a lock or basin to pass through or say the entire St. Mary's Falls Canal, about one mile in length, with every possible craft moving through it counted and the average time occupied in making a lockage only 39 minutes 36 seconds. In the second instance there is a waterway eighty-seven miles long to traverse and the ordinary passage varying from 20 to 36 hours, or with the electric light and every favorable circumstance, 16 hours, and here we may let the comparison of locking through canals rest. Continuing in a different line, however, we find the total lockages through the "Soo" for the season of 1894, amounted to 12.008, but 1.632 of these were by 86 craft under 100 tons, or nineteen passages for each vessel having an average tonnage of only 29 tons. The total value of registered craft using the lock is placed at $41,133,100, this amount, of course, is irrespective of the number of times the vessels may lock through during the season, however, for a monthly value the figures give $5,876,157 worth of floating property.

The port of New York alone shows an aggregate value of vessels of $250,000,000 per year, or at the rate of $20,833,333 each month, or for the seven months during which the canal is open, the value of vessels entering and clearing from that port reaches the enormous total of $145,833,331, but as we have pointed out, this is total valuations and in the case of Atlantic Liners means a repetition of values. Then, in the case of cargo values the canal season of seven months, shows the aggregate amount of values passing through there as $145,435,957, or at the rate of $20,776,565 per month. New York commerce for seven months last year amounted to $632,916,669, or at the rate of $90,416,667 per month, or $1,085,000,000 for the whole year, being nearly five times the commerce value using the "Soo" The port of London had in 1893, in round figures, imported cargoes to the value of $707,801,035, and exported in bottoms $383,323,950, or an aggregate annual showing of $1,091,124,985, figures which show slightly in advance of New York.

While therefore acknowledging our splendid strides in the advancement of Western commerce and transportation, it is not well to permit ourselves to be carried away with grandiloquent statistics making comparisons derogatory to other marts of commerce and thereby engendering what is termed in passing parlance "the big head."

The figures given in the foregoing are not worked out to fractional currency, nor are they intended to be used as positive figures derived from unquestionable detailed statistics, but they will show to the advanced traveler that the lake marine does not abrogate the assumed power and sentiment of the Tooley street tailors who figured that they represented at least the half of the world and the best half at that, too.

As pointed out in our issue of the 27 ult., as a probable outcome of the fog signal fiasco, a representative committee of the most prominent lake masters and pilots have organized an expert and qualified body of their own selection and from among their own ranks to draw up a set of steering and sailing rules for use on the Great Lakes and their connecting and tributary waters, as far east as Montreal or Quebec and in the harbors, lakes and inland waters of the United States. When the new rules have been thoroughly canvassed, Harvey D. Goulder, Esq., proctor in admirality and counsel for the Lake Carriers' Association will carefully revise the code and have the same presented to the Senate and House of Representatives for action to be taken thereon. It is of special interest to note that the rough draft of the new rules already drawn up while eliminating some of the verbosity and indistinctness of the wording contained in the present conglomeration of rules, does not make any radical departures from former lake customs, which whether law or not, legalized or otherwise, has become so through the force of long use and universal practice in the piloting and navigating of lake waters. The suggested change of code will, of course, be placed in the hands of the board of supervising inspectors before receiving the endorsement of the secretary of the treasury but even if adverse criticisms are made by the board, the practical experience, skill and undoubted capabilities of those framing the new measures must win in the end.

SENATOR FRYE, of Maine, predicts the failure of the "Free Ship Bill" in the fifty-third congress, although it may and almost certainly will pass the House by a majority vote of sixty members, still it will be scotched in the Senate. The strong commendation given to the policy of free ships by the president in his annual message and the forcible arguments of the commissioner of navigation, lead most of the majority party to regard the bill as a party measure and a part of the new economic policy or tariff reform. With the "Free Ship Bill" laid to rest in this congress there will be no chance of its bobbing up in the next congress as Senator Frye will probably be chairman of the senate committee on commerce and Governor Dingley, also of Maine, chairman of the House committee on merchant marine, and both men are unalterably opposed to free ship legislation. Senator Frye has given more attention to maritime interests than almost any other member of congress, and he has now several bills in view. One of these is a bill to create a marine board to have control of national marine interests, supervise bureaus now charged with the enforcement of marine laws and recommend reforms to congress. The senator had this bill favorably reported during the last session, but he has now decided not to press its consideration until the next congress, when his party associates in the House will be in a position to co-operate with him.

THE members of the British mercantile marine are all torn up over the promulgation of compulsory course signals to be given in a fog, and to come into effect next March. The backbone of the United States mercantile marine, and by that we mean the vessels engaged in the commerce of the lakes, has been conducted during the season just closed under a misconception of the authority to use the passing, or helm signals in fog as customary heretofore in all weathers and therefore practiced by all pilots and navigators. It is to be hoped that some clear-headed individual will see his way to rescue the coast and ocean mariners from the proposed system of over-tooting in fogs, and the lake seamen from enjoying no less of the intelligent tooting to which they have been accustomed in the past. Passing signals in fog seem to be a *sine qua non* on the lakes, though it is not claimed that speed may always be maintained in thick weather even with the assistance of signals. The attempt to navigate during fogs without the aid of the passing signal proved a fiasco on the lakes this season, and a return to the old rules became general despite of what is considered the new fangled rule to the contrary.

THE list of casualties and total wrecks on the lakes during the past season, printed on page 10 of this issue, is made up from reports collected by officials of the Weather Bureau at Chicago, Cleveland and Detroit, and compiled by Norman B. Conger, inspector in charge of the lake marine service. The table of losses can be laid to stress of weather or weather conditions, with three exceptions, the Ohio, Ironton and Crusader, but as lives were lost in each case they are included in the list of season losses. It will be noticed that the damage in collision cases is not included when caused from mistaken signals, as in the case of the Curry and Thomson, in the "Soo" river, or the Mabel Wilson, in the St. Clair Flats canal, or the Baldwin collision at Marine City. As this is the first season that government officials have collected these invaluable statistics, we take pleasure in commending the new departure, and also to express our thanks to Mr. Norman B. Conger for furnishing this office with the record.

GREAT opposition is in evidence among all maritime countries, except the United States, against the new rules of the road at sea which are to go into effect, according to a proclamation issued by the several governments interested, in March next. The changes are those which were recommended by the international marine conference at Washington, and although the English were well represented there, the hardest sort of opposition to the changes becoming law is telt from that quarter. The new rules have been condemned by the Shipmasters and Officers Federation, the Mercantile Marine Service Association, the committee of Lloyd's Steamship Owners' Association and various other marine organizations. The utmost disgust is expressed at the fog signal complication of sounds as well as the new method of screening side-lights.

WHILE it is a little late to expect that the Fifty-Third Congress will take up the matter and authorize the construction of two vessels for the revenue cutter service on the lakes, yet work ought to be started early in the Fifty-Fourth Congress with a view to obtain authority and money to construct two new vessels for lake patrols to replace the one condemned some time ago on Lake Ontario because of old age and decay, and the one withdrawn from Lake Erie for duty on the Pacific Coast. The Canadians are alive to the protection of their minor interests on the lakes, and the United States can not afford to play second fiddle in the matter of having a proper representation and supervision over its floating property.

IT is significant as showing the lack of government control or guidance of the United States mercantile marine, that while a special bureau composed of a chief and a board of supervising inspectors with a large staff of local inspectors, clerks and messengers are in office to watch over the interests of steam tonnage, there is practically no inspection, rules or regulations applicable to sailing vessels or their officers, only in so far as the commissioner of navigation has a general oversight of national mercantile affairs not taken cognizance of by any other department, which, to say the least, is an undefined and altogether arbitrary position for the incumbent of so important a national office to hold.

A HYDROGRAPHIC OFFICE AT THE "SOO."

The Sault Ste. Marie Chamber of Commerce has adopted the following preamble and resolutions:

WHEREAS, An attempt is being made by the cities on the Great Lakes to urge the government to establish branch hydrographic offices at some of the important harbors on the Great Lakes, at which offices the navy department, through its bureau of navigation and the hydrographic office, will issue charts, sailing directions and nautical publications adapted to the special needs of captains and sailing masters, and at which offices the charts and publications already in the hands of said masters, will be kept continuously corrected up to date to accord with the latest information received by the government; and

WHEREAS, The position of the city of Sault Ste. Marie, Mich., renders it peculiarly adapted to the dissemination of such information to a greater extent than perhaps any other city on the lakes. Situated on the St. Mary's River, about midway between Duluth and Chicago and Buffalo, at the St. Mary's Falls ship canal and locks, through which all vessels bound to Lake Superior ports must pass, and are always detained for a time sufficient to permit the officers of the boats to call at the hydrographic office, an office at Sault Ste. Marie would accommodate more vessels with desired information than any office that could be established at any other port on the lakes. This is shown by the engineer's report of the vessels which locked through the canal in the season of 1894, being fourteen thousand four hundred and ninety-one (14,491), besides upwards of three hundred and thirty vessels, during said season which made this port a terminus, and did not pass the government canal, making a total of 14,821 vessels, or an average of over 63 vessels a day during the entire season of navigation, which, were there a hydrographic office at this port, could have availed themselves of the advantages and information there procurable.

WHEREAS, The St. Mary's River extending above and below this port, on account of its tortuous channel, its rock cuts its shoals and the frequent accumulation of logs, snags and other dangers, to navigation, it is one of the most dangerous parts of the entire waterways of the Great Lakes, consequently an office at this point could quickest and best furnish to vessels any change in the boat channel of said river; therefore, be it

Resolved, That the establishment at this port of a branch hydrographic office would be a great benefit and advantage, not only to the local vessel interests, but to the entire immense vessel interests which ply their boats between Lake Superior and the lower lakes.

Resolved, That our representative in the senate and house of repersentatives in congress be urged to take such action at the navy department in congress, to establish a branch hydrogradhic office at this port, and to provide sufficient appropriotions to extend to this the connecting strait of the Great Lakes, in an adequate degree, the nautical benefits enjoyed at similar offices now established.

Resolved, That copies of these resolutions be sent to Commander Chas. D. Sigsbee, hydrographer at Washington, and to our senators and representatives, to Hon. Henry W. Seymour and others, with the request for assistance in securing the desired results.

LAKE SUPERIOR WATER LEVEL.

Light-House Keeper C. A. Kimball, of the Whitefish Point light, sends the following account of a phenomenal fluctuation of water levels on Lake Superior. He says: "There was an unusual disturbance at this end of Lake Superior, during the night of December 21, and about 100 yards of the extreme end of the point was washed away. This must have been done by a strong current, as the sea was only moderate, and the sand that formed the point, and which had been making for the last 12 or 15 years, seems to have moved out instead of into the bay. The wind during December 21, was in the morning south moderate breeze, and in the afternoon west to northwest gale, and on December 22, in the morning, there was a light north wind. On November 27th a heavy gale from north to northwest forced the water over the bank, filling the marshes, and leaving six inches of water in the cellar of the light-house, which stands some fifty rods from the lake. This storm only helped make the point extend farther out."

A CANINE PATROL.

At the wreck of the steamship Metropolis on the coast of North Carolina, while the life-saving crew were engaged in rescuing the passengers thrown into the sea by the breaking up of the vessel, a large Newfoundland dog belonging to a gentleman residing in the vicinity seemed suddenly to comprehend the situation, and joining the throng of rescuers plunged into the surf, seized a drowning man and dragged him safely ashore. Shortly afterward he left his master and went to the station of the crew with whom he rendered his first services in life saving, and there he still remains, steadily resisting every inducement to return to his former master. Every alternate night he sets out with one of the first patrol and accompanies him until the patrolman from the next station below is met, when he joins the latter and proceeds with him to that station, where he remains until the first watch of the next night, when he returns to his own station in the same manner. These self-assumed duties he performs with the peculiar gravity of demeanor that distinguishes his species, changing his station daily for some good and sufficient dog reason no doubt, while very sensibly keeping but one watch each night.

A MANUAL OF NAVAL ARCHITECTURE.

W. H. White, C. B., L. L. D. has published a third edition, revised and enlarged of his "manual of naval architecture." In the new edition the "Resistance of Ships" is considered at greatly increased length, and has been brought well up to date. Relative to speed trials in various depths of water it is stated on page 467 that the effect of relative shoalness of water has been very marked on the speed trials of some recent ships. A few examples out of many may be given. A torpedo-gunboat of the Royal Navy was run twice on the same measured mile on the same day. At high tide she attained a speed of 17-8 knots, whereas at low tide the speed for the same horse-power was fully half a knot less. The maximum depth of water was about nine fathoms, and the minimum about seven fathoms. On the measured mile in Stokes Bay, H. M. cruiser *Edgar* required 13,260 horse-power to attain 20½ knots in 12 fathoms of water, and was accompanied in this shallow water by considerable wave phenomena. In water 30 fathoms deep, between Plymouth and Falmouth, the wave disturbance was much less, and the ship attained 21 knots with 12,550 horse-power. On the trials of H. M. cruiser *Blenheim*, during the first hour the depth of water was mostly about nine fathoms, the engine made 92½ revolutions, and developed 15,750 horse-power, the speed of the ship being 20 knots. Under these adverse circumstances, the wave phenomena were most striking and unusual. Later on during the same trial the ship ran for two hours in water from 22 to 36 fathoms in depth, the same power was developed by the engines as in the first hour; but in consequence of the greater depth of water, the engine made 96½ revolutions, and the speed rose to 21½ knots.

NOTES.

MESSRS. CRAWLEY & JOHNSTON, Cincinnati, O., manufacturers of the "Cincinnati steam steerer," have just received an order from T. M. Jenkins & Co., Pittsburg, Pa., for one of their steam steerers to be placed on board the steamer Resolute.

DURING the year 1893, 3,341 ships passed through the Suez Canal, or a little over an average of 9 a day. The time occupied in passing was, for those using the electric light, 19 hours 52 minutes, and for the others 31 hours 24 minutes. Of the above vessels, 2,405 were British.

THE WESTERN BLOCK CO., Lockport, N. Y., manufacturers of tackle blocks and sheaves, wrought iron blocks and sheaves for wire rope to travel in, are to the fore again this year in getting out a neat and tasty calendar, a copy of which has been received at this office. THE RECORD returns thanks to our old time patrons for their kind remembrance of us at this festive season of the year.

LORD DUNRAVEN has just successfully passed the English examination for a yachtsman's certificate, entitling him to be sailing master of his own yacht. The certificate is the same as the merchant master's certificate, except that the four year's service at sea in subordinate positions is dispensed with, and that the holder can sail no vessel save his own. The examination was a stiff one, lasting three days. Lord Brassey holds a like certificate.

A SCHEME has been revived in France for the construction of a ship canal from the Atlantic to the Mediterranean with a view to diverting traffic from the Straits of Gibraltar. The scheme was first brought before the French public in 1880, but it has hung fire during the last fourteen years. The length of the proposed canal is 250 miles, but it will be necessary to have 61 locks. The cost of the canal is variously estimated at from £28,000,000 to £60,000,000.

The Sherwood Manufacturing Co., brass founders and finishers, Buffalo, N. Y., have just published a finely illustrated catalogue and price list for 1895, of their numerous specialties in injectors, lubricators, engine and boiler supplies. The Sherwood Co. gained honors at the World's Columbian Exposition, and is one of the best known firms, in their line of business, on the lakes, their marine patrons always speaking well of the square dealing and businesslike methods of the firm.

THE patent wharf drop, manufactured by the American Ship Windlass Co., Providence, R. I., has come to be regarded as an essential feature of the passenger excursion business, because the gang planks are managed so efficiently and so economically, and they are so durable and convenient that parties running excursion boats find that they are an important adjunct to the business. During the past year a large number of parties in Bridgeport, (Conn.) in and around Boston, New York, Wilmington, Philadelphia, and the different ports where passenger and excursion boats are run, have ordered these wharf drops, and wherever they have used one wharf drop and seen its advantages they have invariably come again for others when building new wharves.

SHIPBUILDERS are somewhat eager in their competition for the contract to build three torpedo boats for the navy department. According to the list of firms applying to the construction department of the navy for plans, the following firms will be among the bidders: Cramps, Philadelphia; Union Iron Works, San Francisco; Columbia Iron Works, Baltimore; Bath Iron Works, the Quintard Iron Works, the Newport News Steel Shipbuilding Co., the Herreshoff Manufacturing Co., Samuel L. Moore & Son, George Lawley & Son, Boston, Mass.; the Fulton Engineering & Shipbuilding Works, San Francisco; the Durham, Carrigan & Hayden Co., New York.; the Coronado Foundry & Machine Co., San Diego; the Nefie & Levy Steam Engine Building Co., Philadelphia; Charles L. Seabury & Co., New York; the Maryland Steel Co., the Gatling Torpedo Boat Co., the Detroit Boat Works, the New York Shipbuilding & Engine Co., the Columbia Safety Steamship Co., Boston, and the Globe Iron Works Co., Cleveland, Ohio.

LIST OF CASUALTIES AND TOTAL WRECKS ON THE GREAT LAKES DURING SEASON OF 1894.

LAKE SUPERIOR.

DATE.	NAME OF VESSEL.	CASUALTY AND LOCATION.	LOSS.
June 7	Str. St. Magnus	Struck rocks 60 miles above Duluth in fog.	.....
*Aug. 7	" Roanoke	Burned off Ontonogan	$54,000
*Sep. 22	" James Pickands	Stranded Eagle River Reef	88,200
*Oct. 7	Two scows	Broke from tug off Grand Marais	7,000
Oct. 13	Str. Geo. L. Colwell	Stranded at Deer Park	9,000
Oct. 13	Schr. D. P. Dobbins	" " " "	6,500

One life lost, washed overboard from steamer Caledonia

SAULT STE. MARIE RIVER.

Aug.24	Schr. Ahira Cobb	Collision in Mud Lake	$ 8,000
*Nov. 6	Tug Crusader	Fire at the Sault.	12,000

Two lives lost.

LAKE MICHIGAN.

Mar. 5	Schr. Louisa A. Glade	Stranded off Manitowoc	$ 1,400
*Apr. 4	Str. Minneapolis	Foundered off McGulpin's Point	80,637
* " 8	Schr. Island City	" off Milwaukee	1,220
* " 12	" Lottie Cooper	" off Sheboygan	8,350
" 28	" John V. Jones	Collision N. E. of South Manitou Island.	600
*May 18	" M. J. Cummings	Foundered Milwaukee Bay	6,000
" 18	" C. C. Barnes	Stranded Milwaukee Bay	nom.
* " 18	" Evening Star	Foundered off 26th St., Chicago	2,500
* " 18	" C. G. Mixer	Stranded off 100th St., Chicago	7,500
* " 18	" J. L. McLaren	" " 27th " "	14,000
* " 18	" Jack Thompson	" " 27th " "	5,500
* " 18	" Myrtle	Foundered off Chicago	2,250
* " 18	" H. B. Moore	Stranded 26 miles south of Chicago	2,500
* " 18	" Lincoln Dall	" off Glencoe, Ill.	5,000
* " 18	" Mercury	" off 25th street, Chicago	8,100
* " 18	" Rainbow	Water-logged, capsized off 12th, Chicago	7,000
* " 18	" Moses Gage	Stranded Michigan City, Ind.	4,000
* " 18	" Mineral State	Scuttled Elk Rapids, Mich	300
* " 18	" Myrtle Camp	Stranded 15 miles N. of Menominee, Wis	1,500
" 18	" Emily Cooper	" near Manitowoc	1,200
" 18	" Sizer	" 15 miles N. of Menominee	nom.
" 18	Stmr. E. S. Tice	" 3 miles north of Green Bay	"
" 18	Schr. Winslow	" near Menominee	"
" 18	" Allegheny	" Grassy Island, Green Bay	1,200
" 18	Stmr. Hudson	High seas, at anchor off Chicago	2,000
" 18	Schr. T. Y. Avery	" " Chicago harbor	625
" 18	" Magnolia	Stranded 8 miles SE. Chicago	400
" 18	" City of Gd. Rapids	Collision off Chicago	700
" 18	" M. A. Gregory	Heavy gale near Chicago	185
* " 18	" Lem Ellsworth	Foundered Lake Michigan	10,000
" 30	Stmr. Britannic	Thick weather, currents, White Shoals	7,660
Aug. 6	Schr. Annie P. Grover	Stranded South Manitou harbor	3,000
* " 9	" Magdalena	Foundered bet. Manitou & N. Mission Lt	400
* " 10	" Belle Laurie	" Garrett's Bay	300
" 27	" James G. Blaine	Stranded near end S. Fox Island	2,500
" 27	Stmr. Florida	" Pyramid Point	5,100
" 28	" Griffin	" Dead Man's Point	3,200
Sep. 1	" Robert Holland	" Sleeping Bear Point	5,000
" 1	Schr. Fannie Neil	" " " "	3,000
" 1	" S. M. Stephenson	" " " "	nom.
" 3	" Arctic	" Antrim Shoal	500
" 7	Stmr. City of Charlevoix	" 5 miles north of Charlevoix	2,500
" 7	Schr. Laura Miller	" north of Holland, Mich	300
" 10	" Baltic	" near South Point, Milwaukee	4,260
" 10	" Grace M. Filer	" 3 miles inside Gd. Traverse Pt.	700
" 15	" Jennie Miller	" 1 mile south of Charlevoix piers	2,050
" 23	" Agnes L. Potter	Struck the pier at Grand Haven	100
* " 25	" Wm. Home	Foundered 3 miles off Seul Choix Point	10,000
* " 26	" L. May Gutherie	Stranded Fisherman's Shoals	2,700
" 27	" Nelson Bloom	Spars carried away bet. Beaver & Pov. I.	1,200
Oct. 13	" A. J. Mowrey	Dismasted off Port Washington	800
* " 13	" Alva Bradley	Foundered south end N. Manitou Isle	40,000
* " 15	" May Cornell	Stranded Point Au Sable	370
* " 15	" C. L. Fisk	" Lee's Pier, Oceana Co., Mich.	1,300
*Nov 10	Scow St. Ignace	Capsized Mud Lake	4,000
" 12	Stmr. W. L. Wetmore	Stranded two miles off Cleveland, Wis.	13,500
" 12	Schr. Brunette	" " " " "	6,000
" 13	Stmr. Monteagle	" Morgan's Reef	15,000
" 14	Schr. Julia	" 1 mile north of Cedar River	700
" 14	" David Wallace	" Sissaway Point	4,500
" 15	" D. S. Austin	" Ludington, Mich.	3,000
* " 15	" Antelope	Capsized, foundered off Grand Haven, M.	600

A total of forty lives lost, three having been washed overboard.

LAKE HURON.

*Apr. 3	Stmr. W. H. Barnum	Foundered off Freedom, Mich.	$52,000
May 5	" Charles Hibbard	Stranded Thunder Bay Island	4,500
* " 7	Schr. American Union	" off Fishers' Mich. May 18	10,000
* " 19	" William Shupe	" 3 miles above Gratiot Light	5,500
* " 20	" H. D. Stockman	Foundered Saginaw Bay	200
" 20	Stmr. Loretta	Stranded mouth of Au Sable River	6,000
" 24	" Escanaba	" ½ mile from Grindstone City	11,600
Aug.26	" M. T. Green	" south point Mackinaw Island	3,500
*Sep. 12	Schr. Evening Star	" Fisherman's Bay	.....
" 13	Stmr. Enterprise	" north point Thunder Bay Reef	34,000
" 13	" S. P. Ely	" Drummond's Island	1,000
* " 26	" Ohio	Collision 15 miles off Presque Isle	40,000
* " 26	Schr. Ironton	" 15 " " " "	20,000
" 29	Stmr. Neosho	Stranded Spectacle Reef	108,000
Oct. 10	Schr. John Wesley	Capsized on Saginaw Bay	5,000
* " 27	Stmr. D. M. Wilson	Foundered 2 miles NE. Thunder Bay Is.	37,500
Nov.10	" Wawatam	Stranded Drummond's Island	7,750
* " 13	Schr. John Shaw	Foundered off Au Sable	43,310

Nine lives lost.
* Total losses.

LAKE ST. CLAIR AND DETROIT RIVER.

DATE.	NAME OF VESSEL.	CASUALTY AND LOCATION.	LOSS.
*Apr. 17	Stmr. Burlington	Burned below Detroit	$10,000
Jun. 24	Steam yacht Ellen M	Foundered Lake St. Clair	.....
" 24	Dredge General Meade	" " " "	nom.
*Jul. 29	Schr. Glad Tidings	Collision near Fighting Island	3,000

Eight lives lost.

LAKE ERIE.

Apr. 3	Schr. H. D. Root	Stranded South Bass Island	$ 1,000
Aug.23	Stmr. Norwalk	" north Harbor Reef	7,000
Sep. 1	" Nahant	" 1½ miles east Point Au Pelee	550
* " 8	Schr. Col. Cook	" near Lorain	2,706
Oct. 5	Stmr. Samuel Mather	Struck pier, Ashtabula Harbor	1,200
" 11	Schr. Tasmania	Stranded at Cleveland	5,000
" 11	Stmr. C.W.Chamberlain	Damaged by heavy seas near Long Point	1,800
" 14	Barge No. 132	Stranded 1 mile east of Ashtabula	13,300
" 20	Stmr. Alva	" Seneca Shoal	1,500
Nov. 3	" George T. Hope	Damage by heavy seas off Conneaut	2,980
" 3	" Seattle	Thrown on beach near Rond Eau	10,000
" 3	Schr. Belle Hanscomb	Damage by gale	1,184
" 13	Stmr. Oscar T. Flint	Stranded Bar Point Shoal	1,000
" 24	Schr. Senator Blood	" near Lorain	.....
" 25	Stmr. Colgate Hoyt	" Long Point	5,000

Only one life lost.

LAKE ONTARIO.

May 10	Schr. Glad Tidings	Ran ashore on Baker's Point	$ 500
*Oct. 11	" Hartford	Foundered Mexico Bay	18,000
*Nov.24	" Baltic	" near Oswego	9,300
* " 27	" D. G. Fort	Driven ashore near Oswego	400

Seven lives lost.
* Total losses.

RECAPITULATION.

LOCATION.	Number of Casualties.	No. of Total Losses.	Estimated Value of Tot. Loss.	No. of Partial Losses.	Amount of Damage	Grand Total Losses.	No. Lives Lost
Lake Superior	7	4	$150,000	3	$ 15,000	$165,000	1
Sault River	2	1	12,000	1	8,000	20,000	2
Lake Michigan	62	25	225,727	37	93,180	318,907	40
Lake Huron	17	7	208,510	10	181,350	389,860	9
Lake Erie	15	1	2,706	14	51,514	54,220	1
Lake Ontario	4	3	31,300	1	500	31,800	7
Lake St. Clair and Detroit River	4	2	13,000	2	.....	13,000	8
Totals	111	43	$643,243	68	$349,544	$992.787	68

SERVE'S RIBBED TUBES.

Some interesting experiments on the relative efficiencies of the Serve and of plain boiler tubes have recently been made in England by Mr. Blechynden. The apparatus used consisted of a set of model boilers through which were placed a Serve tube and a plain tube. The tubes of one boiler were coupled to those of the other, and Siemens' pyrometers were fitted at the end of each tube. A blowpipe gas jet was then caused to send its flame through one set of the tubes. The pyrometer temperatures were noted, and also the evaporation effected. The boilers were 21 inches long by 7½ inches in diameter, and were clothed with asbestos and cotton wool. Tee Serve tubes were 2½ inches in diameter outside, and 2 3-16 inches inches inside. They had seven ribs 7-16 inches deep by 3-32 inch mean thickness. The plain tubes were of iron, and were 2 3-8 inches in diameter outside, and 2 inches inside. The mean of several experiments showed that the Serve tube transmitted 6,000 British thermal units per square foot per hour, and the plain tube 4,500 British thermal units per square per hour. The area measurements were made on the outside or emission surface of the tubes. From these experiments it would seem that the Serve ribs are very efficient heat collectors, when hot gases are passed through the tubes.

AN ELECTRIC DECK PLANER.

Planing decks and all high classed tonnage is given a wooden sheathing, even over iron, is a long, tedious, and somewhat expensive job in shipbuilding yards, so that anything which would take the the place of a large number of men working at the last moment of a vessel's completion and do the work much better than hand labor and in less time, may be considered an advance on former practice.

Cramps, of Philadelphia, finds that the electric deck planer is a useful adjunct to their shipbuilding industry and that it will do the work of fifty men.

SECRETARY HERBERT has determined to contract with the Holland Torpedo Boat Co., for the construction of a submarine boat at a cost of $150,000. Reports have been received from both the bureaus of steam engineering and construction, stating that the plans for the vessel are entirely feasible and that there will be no danger to the crew by the submergence of the boat. The special board appointed to report upon the thickness of the vessel has recommended that the steel in the middle portion of the craft be increased to one-half inch and that it tapers down at the end to three-eighths of an inch. The Secretary has also approved of this report.

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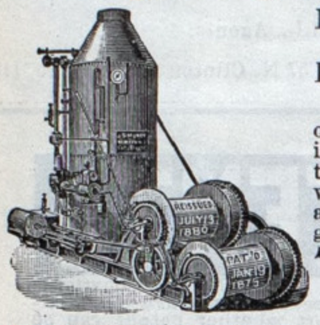

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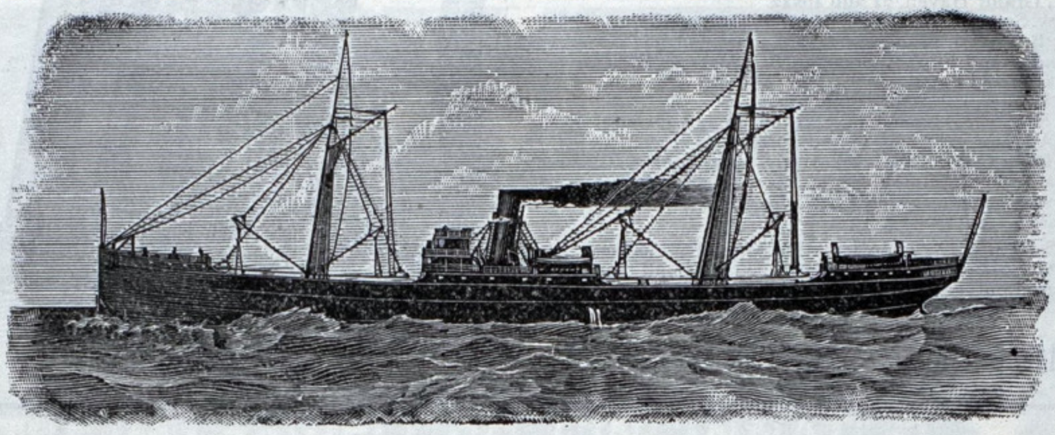

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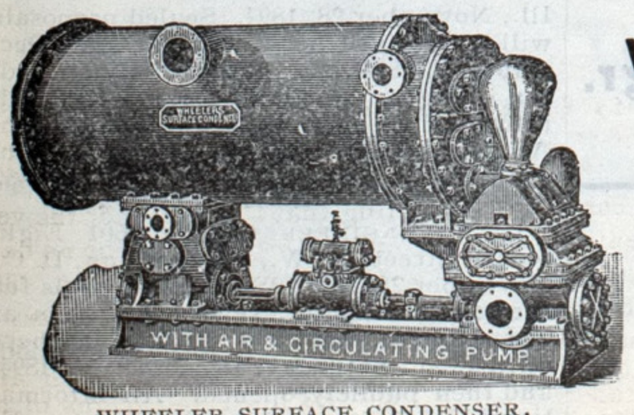

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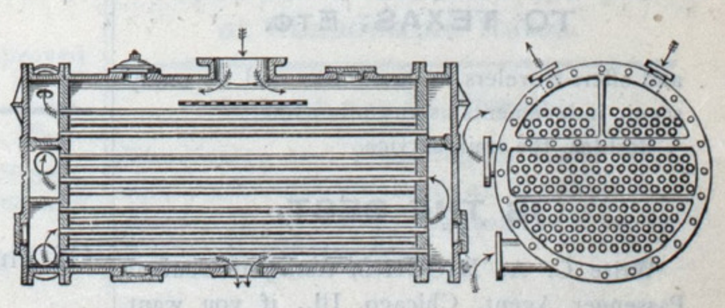

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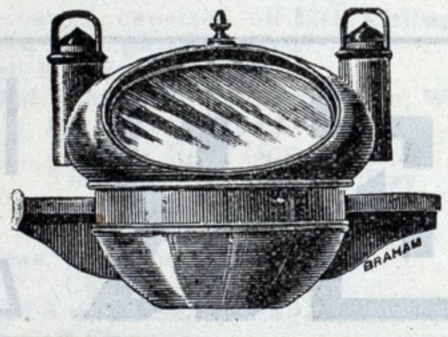

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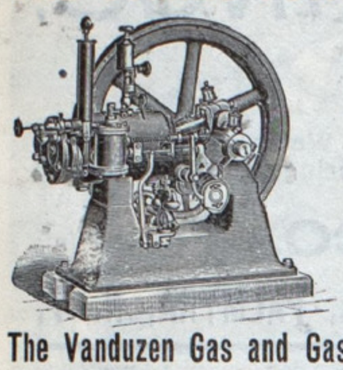

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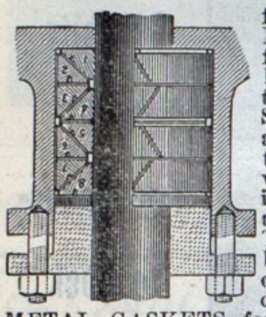

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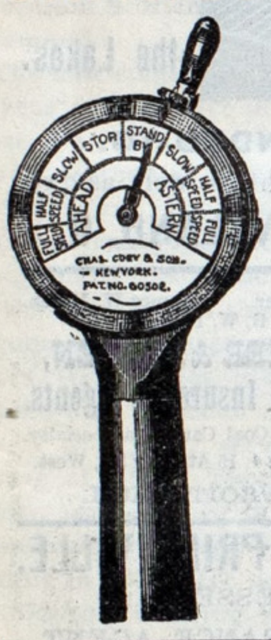

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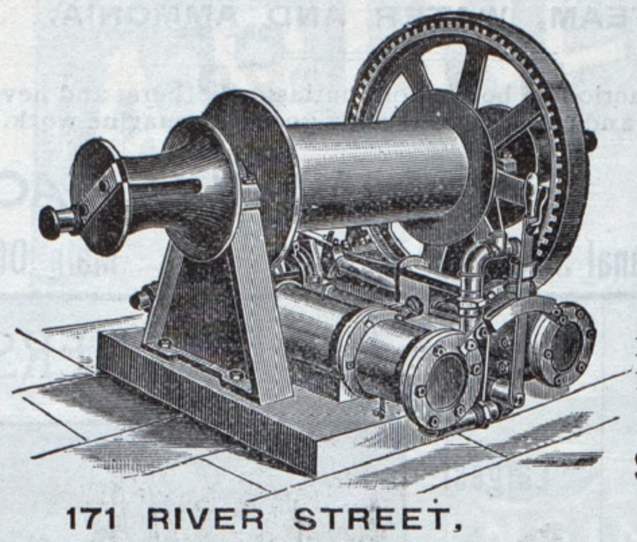

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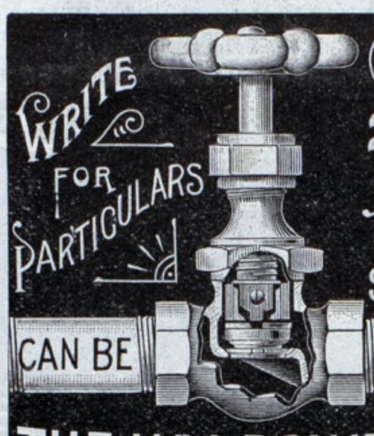

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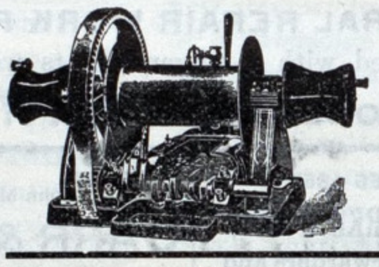

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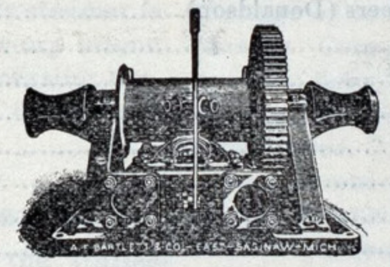

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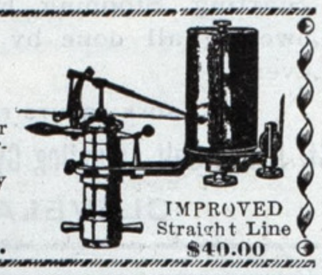

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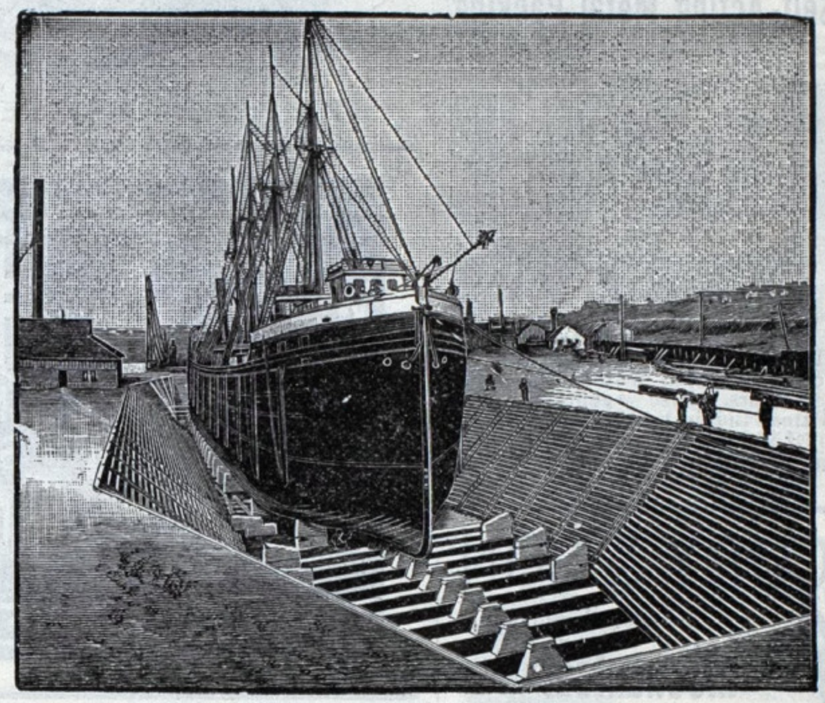

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